

(19) World Intellectual Property Organization International Bureau



LEGIS (III) (III)

(43) International Publication Date 18 December 2003 (18.12.2003)

PCT

(10) International Publication Number WO 03/105185 A1

(51) International Patent Classification⁷: H01J 61/72, 61/48, A61N 5/06

(21) International Application Number: PCT/IB03/02367

(22) International Filing Date: 5 June 2003 (05.06.2003)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

02077211.7 02079125.7 6 June 2002 (06.06.2002) EP 4 October 2002 (04.10.2002) EP

(71) Applicant (for all designated States except US): KONIN-KLIJKE PHILIPS ELECTRONICS N.V. [NL/NL]; Groenewoudseweg 1, NL-5621 BA Eindhoven (NL).

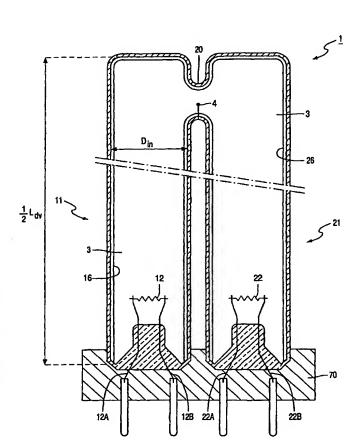
(72) Inventors; and

(75) Inventors/Applicants (for US only): WAUMANS, Lars,

R., C. [NL/NL]; Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL). VAN DER BURGT, Petrus, J., M. [NL/NL]; Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL). GIE-LEN, Johannes, W., A., M. [NL/NL]; Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL). VAN DER POL, Adrianus, J., H., P. [NL/NL]; Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL). VAN KEMENADE, Johannes, T., C. [NL/NL]; Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL). MOENCH, Holger [DE/NL]; Prof. Holstlaan 6, NI-5656 Aa Eindhoven (NL). HELLEBREKERS, Wilhelmus, M. [NL/NL]; Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL). DE MAN, Rolf, E. [NL/NL]; Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL). HENDRIX, Johan, L., V. [BE/BE]; Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL). DORLEIJN, Jan, W., F. [NL/NL]; Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL). DE GROOT, Josephus, J. [NL/NL]; Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL).

[Continued on next page]

(54) Title: LOW-PRESSURE MERCURY VAPOR DISCHARGE LAMP



(57) Abstract: Low-pressure mercury vapor discharge lamp has a discharge vessel (1) enclosing a discharge space (3) provided with an inert gas mixture and mercury. A first portion (11) of the discharge vessel is provided with a first electrode (12) and a luminescent layer (16), radiating light in a first range of the electromagnetic spectrum. A second portion (21) of the discharge vessel is provided with a second electrode (22), radiating light in a second range of the electromagnetic spectrum, said second range being different from the first range. According to the invention, the low-pressure mercury vapor discharge lamp comprises current supply conductors (12A, 12B; 22A, 22B) for receiving a DC current, and the discharge space contains only two electrodes (12, 22). The discharge lamp has a variable color temperature. Preferably, the discharge lamp influences the melatonin cycle in a human subject. Preferably, the lumen output level is independent of temperature.



- (74) Agent: VAN WERMESKERKEN, Stephanie, C.; Internationaal Octrooibureau B.V., Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL).
- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH REPORT

Internat Application No PCT/15 03/02367

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H01J61/72 H01J61/48

A61N5/06

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols) IPC 7 H01J A61N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

	ata base consulted during the international search (name of data base ternal, PAJ, WPI Data, INSPEC	alit, wiele pławica, scaloricinis usocy		
C. DOCUM	ENTS CONSIDERED TO BE RELEVANT			
Category °	Citation of document, with indication, where appropriate, of the refer	vant passages	Relevant to claim No.	
Х	EP 0 806 792 A (SLI LICHTSYSTEME (12 November 1997 (1997-11-12)	1,2, 9-13,18, 24,25		
A	column 3, line 16 -column 4, line column 6, line 10 - line 37	19-23		
Υ	figures 2-4	3,6-8		
Y	WO 01 15204 A (KONINKL PHILIPS EL NV) 1 March 2001 (2001-03-01) page 5, line 28 - line 33; figure	3,6-8		
Y	EP 1 043 752 A (TOSHIBA LIGHTING TECHNOLOGY) 11 October 2000 (2000 column 16, line 27 -column 17, lifigure 9	3,6-8		
X Fur	ther documents are listed in the continuation of box C.	X Patent family members are listed	In annex.	
"A" docum consi "E" earlier filing "L" docum which citate "O" docum other	lent defining the general state of the land which is not dered to be of particular relevance document but published on or after the International date ent which may throw doubts on priority claim(s) or it is cited to establish the publication date of another on or other special reason (as specified) sent referring to an oral disclosure, use, exhibition or means tent published prior to the international filling date but	"T" later document published after the International filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention. "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken abone. "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art. "8" document member of the same patent family		
Date of the	actual completion of the international search	Date of mailing of the international se	arch report	
	3 September 2003	15/09/2003		
Name and	mailing address of the ISA European Patent Office, P.B. 5618 Patentlaan 2 NL – 2280 HV Rijswijk Tel. (+31–70) 340–2040, Tx. 31 651 epo nl, Fax (+31–70) 340–3016	Authorized officer Zuccatti, \$		



Internal Application No PCT/IB 03/02367

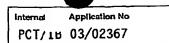
C.(Continua	ation) DOCUMENTS CONSIDERED TO BE RELEVANT	
Category •	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to daim No.
Х	WO 99 21214 A (KONINKL PHILIPS ELECTRONICS NV ;PHILIPS SVENSKA AB (SE)) 29 April 1999 (1999-04-29) page 7, last paragraph; figure 5	1
A	WO 02 20079 A (THAPAN KAVITA ;UNIV SURREY (GB); SKENE DEBORAH J (GB); ARENDT JOSE) 14 March 2002 (2002-03-14) page 7, line 5 - line 19	1,12-16
A	GB 1 062 141 A (WESTINGHOUSE ELECTRIC CORP) 15 March 1967 (1967-03-15) page 5, line 41 - line 87	19-23
A	US 5 719 465 A (LEPELAARS PATRICIUS W M ET AL) 17 February 1998 (1998-02-17) abstract; table 1	2-8, 19-23
Α	PATENT ABSTRACTS OF JAPAN vol. 017, no. 353 (E-1393), 5 July 1993 (1993-07-05) & JP 05 054865 A (TOSHIBA LIGHTING & TECHNOL CORP), 5 March 1993 (1993-03-05) abstract	19–23
Α	SERRES A W ET AL: "Amalgams and compact fluorescent lamps" INDUSTRY APPLICATIONS SOCIETY ANNUAL MEETING, 1993., CONFERENCE RECORD OF THE 1993 IEEE TORONTO, ONT., CANADA 2-8 OCT. 1993, NEW YORK, NY, USA, IEEE, US, 2 October 1993 (1993-10-02), pages 2296-2304, XP010118634 ISBN: 0-7803-1462-X the whole document	2-8
A	EP 0 658 921 A (PHILIPS ELECTRONICS NV) 21 June 1995 (1995-06-21) cited in the application the whole document	1-24



Interns Application No PCT/15 03/02367

	ent document n search report		Publication date		Patent family member(s)	Publication date
EP (0806792	Α	12-11-1997	DE EP	19633768 A1 0806792 A2	13-11-1997 12-11-1997
WO (0115204	Α	01-03-2001	CN	1327614 T	19-12-2001
				MO	0115204 A1	01-03-2001
				EP	1123559 A1	16-08-2001
				JP	2003507876 T	25-02-2003
EP :	1043752	Α	11-10-2000	JP	2000173537 A	23-06-2000
				ΑÜ	5654299 A	17-04-2000
				EP	1043752 A1	11-10-2000
				US	6337539 B1	08-01-2002 07-03-2001
				MO CN	1286801 T 0019488 A1	06-04-2000
WO !	9921214	Α	29-04-1999	EP	0968520 A1	05-01-2000
				MO	9921214 A1	29-04-1999
				JP	2001506403 T	15-05-2001
WO	0220079	Α	14-03-2002	AU	9186601 A	22-03-2002
				CN	1388763 T	01-01-2003
				MO	0220079 A1	14-03-2002
				EP	1317302 A1	11-06-2003
				US	2003069616 A1	10-04-2003
GB	1062141	Α	15-03-1967	BE	666597 A	03-11-1965
				DE	1246120 B	03-08-1967
				DE	1290257 B	06-03-1969
				DE	1287215 B	16-01-1969
				DE	1290631 B	13-03-1969 16-02-1968
				ES FR	335661 A2 1450700 A	24-06-1966
				FR	91794 E	09-08-1968
				FR	91816 E	16-08-1968
				FR	91905 E	30-08-1968
				GB	1137010 A	18-12-1968
				GB	1137090 A	18-12-1968
				GB	1175411 A	23-12-1969
				NL	6507948 A	10-01-1966
				NL	6700706 A	04-08-1967
				NL	6700762 A	04-08-1967
				NL	6700890 A	04-08-1967
				SE	328054 B	07-09-1970 07-09-1970
				SE	328055 B 328056 B	07-09-1970
				SE US	3422299 A	14-01-1969
				US	3534212 A	13-10-1970
				US	3619697 A	09-11-1971
			17_02 1000	CVI	1145135 A	.B 12-03-1997
u2	5719465	Α	17-02-1998	CN DE	69507696 D1	18-03-1999
•			•	DE	69507696 T2	
				EP	0756756 A1	05-02-1997
				พิด	9619823 A1	27-06-1996
				JP	9509530 T	22-09-1997





Patent document cited in search report	Publication date	•	Patent family member(s)	Publication date
EP 0658921 A	21-06-1995	BE DE DE EP JP US	1007838 A3 69405203 D1 69405203 T2 0658921 A1 7211297 A 5677598 A	31-10-1995 02-10-1997 26-02-1998 21-06-1995 11-08-1995 14-10-1997